CLAIMS

1. A desoldering wick comprising:

(a) a wick structure comprising a plurality of heat conductive metal strands adapted to be placed into contact with a surface for the removal of solder therefrom;

(b) a desoldering flux incorporated with said wick structure to provide a surface coating on at least a portion of said metal strands, said desoldering flux comprising a mixture of a first component of a partially polymerized rosin having a melting point of at least 98°C, a second component comprising an ester of a polyhydric alcohol and benzoic acid in an amount which is no more than the amount of said first component, and a third component comprising a dicarboxylic acid having from 2 to 12 carbon atoms which is present in an amount which is less than the amount of said second component.

2. The desoldering wick of claim 1 wherein said second component is present in an amount which is less than the amount of said first component.

3. The desoldering wick of claim 1 wherein said desoldering flux is incorporated into said wick structure in an amount within the range of 1-5 wt.% of said wick structure.

4. The desoldering wick of claim 1 wherein said desoldering flux is incorporated into said wick structure in an amount within the range of 1-3 wt.% of said wick structure.

5. The desoldering wick of claim 1 wherein said first flux component and said second flux component are present in amounts to provide a weight ratio of said first component to said second component within the range of 1:1 – 4:1.

6. The desoldering wick of claim 5 wherein the weight ratio of said first component to said second component is within the range of 2:1 – 4:1.

7. The desoldering wick of claim 5 wherein the weight ratio of said first component to said second component is about 3:1.

8. The desoldering wick of claim 1 wherein said dicarboxylic acid is present in an amount within the range of 0.1 – 5.0 wt.% of the composite amount of said first and second flux components.

9. The desoldering wick of claim 8 wherein said dicarboxylic acid is present in an amount within the range of 0.3 – 0.5 wt.% of the composite of said first and second flux components.

10. The desoldering wick of claim 1 wherein said wick structure comprises an elongated multi-strand structure wherein the individual strands of said multi-strand structure are configured in a helical configuration along the longitudinal axis of said wick structure.

11. The desoldering wick of claim 10 wherein said wick structure has an internal bore extending along the major axis of said wick structure.

12. The desoldering wick of claim 10 wherein said wick structure is configured to have an ellipsoidal cross-section.

13. The desoldering wick of claim 12 wherein the ratio of the width of said wick structure to the thickness of said wick structure is within the range of 4-15.

14. The desoldering wick of claim 12 wherein the ratio of the width of said wick structure to the thickness of said wick structure is within the range of 6-10.

15. The desoldering wick of claim 1 wherein said first flux component is a partially polymerized rosin having an abietic acid dimer content within the range of 30-50%, said second flux component is pentaerythritol tetrabenzoate and said third flux component is $C_8 - C_{10}$ dicarboxylic acid.

16. The desoldering wick of claim 15 wherein said first component has an abietic acid dimer content of about 40 wt.% and said third flux component is sebacic acid.

17. The desoldering wick of claim 16 wherein said wick structure is configured to have a flattened ellipsoidal cross-section having an internal bore extending along the longitudinal axis of said wick structure and having a ratio of the transverse width of said wick structure to the thickness of said wick structure within the range of 4-15.

18. A method for recovering a solder contaminant from a substrate surface comprising:

(a) providing an elongated wick structure comprising a plurality of heat conductive metal strands;

(b) providing a desoldering flux comprising a mixture of a first component of a partially dimerized rosin having a melting point of at least 98°C, a second component comprising an ester of a polyhydric alcohol and benzoic acid in an amount which is no more than the amount of said first component, and a third component comprising an aliphatic dicarboxylic acid which is present in an amount which is less than the amount of said second component;

(c) contacting said solder contaminant on said substrate surface with said wick structure in the presence of said desoldering flux and heating said wick structure and said solder contaminant to a temperature sufficient to melt said solder contaminant whereby said solder contaminant flows into the said wick structure in contact with said metal strands; and

(d) withdrawing said wick structure containing said contaminant solder from said substrate surface.

19. The method of claim 18 wherein at the time of contacting said solder contaminant with said wick structure, at least a portion of said desoldering flux is incorporated within said wick structure to provide a surface coating on at least a portion of said metal strands of said wick structure.

20. The method of claim 19 wherein said wick structure has an internal bore along the longitudinal axis of said wick structure and at least a portion of the desoldering flux incorporated within said wick structure, is located within said interior bore.

21. The method of claim 20 wherein said first flux component and said second flux component are present in said desoldering flux in amounts to provide a weight ratio of said first component to said second component within the range of 1:1 – 4:1.

22. The method of claim 21 wherein the weight ratio of the first component of said desoldering flux to the second component of said desoldering flux is within the range of 2:1 – 4:1.

23. The method of claim 22 wherein said desoldering flux is incorporated within said wick structure in an amount within the range of 1-5 wt.% of said wick structure.

24. The method of claim 23 wherein said desoldering flux is incorporated within said wick structure in an amount within the range of 1-3 wt.% of said wick structure.

25. The method of claim 24 wherein said first flux component is a partially polymerized rosin having an abietic acid dimer content within the range of 30-50%, said second flux component is pentaerythritol tetrabenzoate and said third flux component is C_6 – C_{10} dicarboxylic acid.

26. The method of claim 25 wherein said first component has an abietic acid dimer content of about 40 wt.% and said third flux component is sebacic acid.

27. The method of claim 19 wherein said wick structure is configured to have a flattened ellipsoidal cross-section having an internal bore extending along the longitudinal axis of said wick structure and having a ratio of the transverse width of said wick structure to the thickness of said wick structure within the range of 4-15.

28. The method of claim 27 wherein at least a portion of the desoldering flux incorporated within said wick structure is located within the interior bore of said wick structure.

29. The method of claim 28 wherein said solder contaminant flows within said wick structure, preferentially within the interior bore of said wick structure.